

# Port Hueneme

Reference ID

Origin: California, USA

## API Gravity

14.8

ESD 91

## Equation(s) for Predicting Evaporation

$$\%Ev = (0.30 + 0.045T)\ln(t)$$

Where %Ev = weight percent evaporated; T = surface temperature ( $^{\circ}\text{C}$ ); t = time (minutes)

ESD 96

## Sulphur (weight %)

### Evaporation

(volume %)

0	3.73	
4	3.69	
8	3.63	

ESD 93

## Water Content (weight %)

### Evaporation

(volume %)

0	0.9	
4	0.1	
8	<0.1	

ESD 98

## Flash Point ( $^{\circ}\text{C}$ )

### Evaporation

(volume %)

0	-11	
4	>90	
8	>90	

ESD 91

ESD 92

## Reid Vapour Pressure (kPa)

9

ESD 91

## Density (g/mL)

### Evaporation

(volume %)

### Temperature

( $^{\circ}\text{C}$ )

0	0	0.9756	
	15	0.9662	
4	0	0.9843	
	15	0.9745	
8	0	0.9888	
	15	0.9787	

ESD 91

## Pour Point ( $^{\circ}\text{C}$ )

### Evaporation

(volume %)

0	-9	
4	-9	
8	0	

ESD 91

## Dynamic Viscosity (mPa·s or cP)

### Evaporation

(volume %)

### Temperature

( $^{\circ}\text{C}$ )

0	0	22510	
	15	4131	
4	0	54160	
	15	7833	
8	0	157800	
	15	20990	

ESD 91

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## Emulsion Formation

Evaporation (volume %)				Reference ID
0	Visual stability	entrained		ESD 98
	Viscosity (mPa·s)	16000		
	Complex modulus (Pa)	64		
	Water content (wt %)	38		
4	Visual stability	entrained		
	Viscosity (mPa·s)	46000		
	Complex modulus (Pa)	170		
	Water content (wt %)	45		
8	Visual stability	entrained		
	Viscosity (mPa·s)	71000		
	Complex modulus (Pa)	270		
	Water content (wt %)	43		

## Chemical Dispersibility (volume %)

Evaporation (volume %)				Reference ID
0	Corexit 9500	12		ESD 98
	Corexit 9527	0		ESD 91
	Dasic LTS	0		
	Enersperse 700	0		
4	Corexit 9500	5		ESD 98
	Corexit 9527	0		ESD 97
	Dasic LTS	0		
	Enersperse 700	0		
8	Corexit 9500	0		
	Corexit 9527	0		
	Dasic LTS	0		
	Enersperse 700	7		

## Hydrocarbon Groups (weight %)

Evaporation (volume %)				Reference ID
0	Saturates	24		ESD 96
	Aromatics	43		
	Resins	20		
	Asphaltenes	12		ESD 91
	Waxes	5		
4	Saturates	23		ESD 96
	Aromatics	41		
	Resins	21		
	Asphaltenes	14		
	Waxes	3		ESD 98
8	Saturates	23		ESD 96
	Aromatics	37		
	Resins	28		
	Asphaltenes	13		
	Waxes	3		ESD 98

## Adhesion (g/m<sup>2</sup>)

Evaporation (volume %)				Reference ID
0		67	SD = 10	ESD 96
4		91	SD = 10	
8		124	SD = 15	

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## Volatile Organic Compounds (ppm)

Evaporation (volume %)	Benzene	Toluene	Ethylbenzene	Xylenes	C3-benzenes	Total BTEX	Total VOCs	
0	0	50	140	90	660	280	950	ESD 94
	Benzene	Toluene	Ethylbenzene	Xylenes	C3-benzenes	Total BTEX	Total VOCs	
	0	0	50	50	360	100	460	
4	0	0	50	50	0	0	0	
	Benzene	Toluene	Ethylbenzene	Xylenes	C3-benzenes	Total BTEX	Total VOCs	
	0	0	0	0	0	0	0	
8	0	0	0	0	0	0	0	
	Benzene	Toluene	Ethylbenzene	Xylenes	C3-benzenes	Total BTEX	Total VOCs	
	0	0	0	0	0	0	0	

## Surface Tension (mN/m or dynes/cm)

Evaporation (volume %)	Temperature (°C)		
0	0	32.6	ESD 91
	15	30.8	
4	0	NM	
	15	30.0	
8	0	NM	
	15	31.1	

## Oil/Salt Water Interfacial Tension (mN/m or dynes/cm)

Evaporation (volume %)	Temperature (°C)		
0	0	30.8	ESD 91
	15	23.2	
4	0	NM	
	15	28.4	
8	0	NM	
	15	28.6	

## Oil/Fresh Water Interfacial Tension (mN/m or

Evaporation (volume %)	Temperature (°C)		
0	0	35.6	ESD 91
	15	30.2	
4	0	NM	
	15	30.1	
8	0	NM	
	15	32.6	

# Port Hueneme

Reference ID

## Boiling Point Distribution (weight %)

Evaporation <u>(volume %)</u>	Boiling Point <u>(°C)</u>	Weight %	
0	40	1	ESD 94
	60	1	
	80	1	
	100	1	
	120	2	
	140	2	
	160	3	
	180	4	
	200	5	
	250	11	
	300	17	
	350	25	
	400	33	
	450	42	
	500	51	
	550	61	
	600	70	
	650	78	
	700	84	
4	160	1	ESD 96
	180	1	
	200	3	
	250	8	
	300	15	
	350	23	
	400	32	
	450	42	
	500	51	
	550	60	
	600	69	
	650	76	
	700	82	
8	200	1	
	250	6	
	300	12	
	350	21	
	400	30	
	450	40	
	500	50	
	550	59	
	600	68	
	650	75	
	700	82	

## Boiling Point Distribution (°C)

Evaporation <u>(volume %)</u>	Weight %	Boiling Point <u>(°C)</u>	
0	5		ESD 94
	10		
	15		
	20		
	25		
	30		
	35		

# Port Hueneme

Reference ID

## Boiling Point Distribution (°C)

Evaporation <u>(volume %)</u>	Weight %	Boiling Point <u>(°C)</u>	
0	40		
	45		
	50		
	55		
	60		
	65		
	70		
	75		
	80		
	85		
4	5		ESD 96
	10		
	15		
	20		
	25		
	30		
	35		
	40		
	45		
	50		
	55		
	60		
	65		
	70		
	75		
	80		
	85		
8	5		
	10		
	15		
	20		
	25		
	30		
	35		
	40		
	45		
	50		
	55		
	60		
	65		
	70		
	75		
	80		
	85		

## Metals (ppm)

Evaporation <u>(volume %)</u>			
0	Aluminum	6.8	Cao 92
	Barium	<0.3	
	Cadmium	<0.5	
	Calcium	48.8	
	Chromium	<1.5	
	Cobalt	<1	

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Reference ID

Metals (ppm)			
Evaporation (volume %)			
0	Copper	<0.6	Cao 92
	Iron	16.0	
	Lead	<3.	
	Magnesium	3.1	
	Manganese	<0.3	
	Mercury	<15	
	Molybdenum	0.6	
	Nickel	68.0	
	Selenium	<15	
	Strontium	0.6	
	Tin	<15	
	Titanium	0.6	
	Vanadium	253.0	
	Zinc	0.6	
4	Barium	0.7	
	Chromium	<1.5	
	Copper	<0.6	
	Iron	19.7	
	Lead	<3	
	Magnesium	20.3	
	Molybdenum	1.7	
	Nickel	79.0	
	Titanium	1.1	
	Vanadium	288.0	
	Zinc	0.6	
8	Barium	<0.3	
	Chromium	<1.5	
	Copper	<0.6	
	Iron	15.6	
	Lead	<3	
	Magnesium	3.3	
	Molybdenum	0.6	
	Nickel	73.0	
	Titanium	0.6	
	Vanadium	260.0	
	Zinc	0.4	

#### Aqueous Solubility (mg/L)

### Room temperature

3 (a)

ESD 91

(a) fresh water

### **Acute Toxicity of Water Soluble Fraction (mg/L)**

#### Test Organism

48h LC50

>1.07 (a)

Harris 94

(a) results based on GC purge-and-trap analysis